



THE
ONTARIO WATER RESOURCES
COMMISSION
WATER POLLUTION SURVEY
OF THE
VILLAGE OF ST. CLAIR BEACH
Saint
COUNTY OF ESSEX

1964

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R E P O R T

on

WATER POLLUTION SURVEY

of the

VILLAGE OF ST. CLAIR BEACH

COUNTY OF ESSEX

October 1964

Division of Sanitary Engineering

R E P O R T

ONTARIO WATER RESOURCES COMMISSION

A water pollution survey of surface-water drains, and storm sewers, was conducted in the Village of St. Clair Beach on October 6, 1964.

Mr. R. McGrain, Public Health Inspector, Metro Windsor-Essex County Health Unit, assisted in the survey.

GENERAL

The Village of St. Clair Beach with an assessed population of 1,521 (1964 Municipal Directory) is located on the south shore of Lake St. Clair approximately 12 miles east of the City of Windsor. The population increase in the village from 1939 to 1963 is listed:

1939	assessed population	133
1949	" "	376
1959	" "	1371
1963	" "	1521

If the population continues to increase at a similar rate, a population of over 3,000 can be expected by 1980. The village is mainly residential, with a few commercial and business operations and two golf courses.

Individual septic tank systems are presently employed for the treatment and disposal of sanitary sewage and other domestic wastes. However, in some sections, adverse soil absorption qualities

and high water-table conditions tend toward unsatisfactory operation of septic tank systems. Other properties in the village, particularly in the business and older residential areas, do not have space available for the installation of adequate field-tile disposal units. These conditions have resulted in the discharge of inadequately treated sanitary sewage and domestic wastes into drains and sewers which are intended for surface-water drainage only. This illegal practice has resulted in the pollution of the surface-water drains which in turn discharge the polluted materials into Lake St. Clair.

SURFACE-WATER DRAINAGE

Surface-water drainage is conveyed in open ditches and storm sewers. A storm sewer system serves the main section of the built-up area. Two pumping stations are utilized to pump the flow into Lake St. Clair, one being located at the end of St. Marks Road and the other at the end of Kensington Blvd. One known drain at the end of Derby Street discharges into the Pike Creek watercourse.

WATER QUALITY ANALYSES

As a measure of assessing the presence and level of pollution, water samples were collected, where possible, from the flow, near the outfall of each surface-water drain. Water samples were also collected from the water area of Lake St. Clair adjacent to St. Clair Beach, and from Pike Creek, which flows along the eastern boundary of the municipality. The sanitary chemical and bacteriological analyses results of these samples are listed

in tables 1, 2 and 3 respectively.

The location of sampling points are designated on the accompanying map by watercourse mileage distances.

INTERPRETATION OF ANALYSES

For convenience in the interpretation of the laboratory analyses, the Ontario Water Resources Commission water quality objectives for surface-water drains and watercourses are listed:

Surface-Water Drains

5-day Biochemical Oxygen Demand (BOD)

- not greater than 15 parts per million (ppm)

Suspended Solids

- not greater than 15 parts per million (ppm)

Coliform Count (Membrane Filter)

- not greater than 2400 per 100 millilitres (ml)

Anionic Detergent (as ABS)

The presence of anionic detergent in water samples indicates pollution from domestic sources.

Watercourse or Bodies of Water

5-day Biochemical Oxygen Demand (BOD)

- not greater than 4 parts per million (ppm)

Coliform Count

- not greater than 2400 per 100 millilitres (ml)

SIGNIFICANCE OF LABORATORY ANALYSES

The sanitary chemical and bacteriological analyses of all samples collected from the surface-water drains show results greatly in excess of the water quality objectives. The presence of anionic detergent, and the excessively high coliform counts, indicate that sanitary sewage and other domestic wastes are the probable sources of pollution.

The laboratory analyses of water samples collected from Pike Creek also indicate that sanitary sewage and domestic wastes are being discharged into that watercourse.

The analyses of water samples collected from Lake St. Clair, adjacent to the St. Clair Beach shoreline, did not indicate a marked increase in the level of pollution at the time of sampling. This may be attributed to the fact that the pumps discharge from the drainage system intermittently and that a south-west wind may have been carrying the pollution away from the water area where the samples were collected.

CONCLUSIONS

The surface-water drains and storm sewers throughout the village are grossly polluted. This condition may be attributed to the illegal practice of permitting the discharge of inadequately treated sanitary sewage and domestic wastes into these drains.

The flow from the municipal drains is therefore considered

as a source of pollution of Lake St. Clair.

The grossly polluted flow from the Derby Street municipal surface-water drain (Sampling Point No. P.O.41D - Table 1) is considered as a source of pollution of the Pike Creek watercourse. Some discharges through drains from private properties adjacent to Pike Creek are also considered as contributing to the pollution of the watercourse. The installation and operation of septic tanks systems is now under the supervision of the Metro Windsor-Essex County Health Unit. It is suspected however, that some older systems which were put into operation prior to health unit supervision, were improperly installed and that in many instances field tile disposal beds were eliminated entirely, and as an alternative, direct drains from septic tanks to municipal surface-water drains were installed.

SUMMARY

A water pollution survey was conducted in the Village of St. Clair Beach on October 6, 1964.

All surface-water drains investigated were polluted. The extremely high BOD, anionic detergent, and coliform counts indicate sanitary sewage and other domestic wastes to be the major source of such pollution.

A condition of pollution exists in the Pike Creek watercourse. The discharge flow from the Derby Street drain is considered as responsible for a portion of the pollution. The discharge of

inadequately treated sewage through private drains from some properties adjacent to the creek is suspected as also contributing to the pollution in the watercourse.

RECOMMENDATIONS

1. The Village of St. Clair Beach should institute a sewerage works programme, and proceed with the installation of sanitary sewers and an adequate system for sewage treatment.

2. In the event that the institution of such a project is not feasible, it will then be necessary that the municipality take immediate measures to ensure that all private drains, which discharge inadequately treated wastes to any surface-water drain or watercourse, are located and severed.

This action will therefore require each property owner to provide a means of adequate treatment for his own wastes.

All of which is respectfully submitted,

District Engineer:

C. E. McIntyre
C. E. McIntyre

Approved by:

K. H. Sharpe
K. H. Sharpe, Director.

T A B L E 1

VILLAGE OF ST. CLAIR BEACH - WATER POLLUTION SURVEY

Surface-Water Drains

<u>Mileage</u> <u>Designation</u>	<u>Location of</u> <u>Sampling Point</u>	<u>5-Day</u> <u>BOD</u> <u>(ppm)</u>	<u>SOLIDS (ppm)</u>			<u>Anionic</u> <u>Detergent</u> <u>as ABS</u> <u>(ppm)</u>	<u>Coliform Count</u> <u>per 100 ml</u> <u>Membrane Filter</u>
			<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>		
L.ST.C.66.89W	At St.Marks Road Pumping Station outfall to Lake St.Clair	15.0	578	26	552	5.0	3,800,000
L.ST.C.66.65W	At Kensington Blvd. Pumping Station outfall to Lake St.Clair	4.2	460	5	455	3.4	970,000
P.O.41D	Derby St. drain outfall to Pike Creek	360.0	2418	1678	740	30.0	34,000,000

T A B L E 2

VILLAGE OF ST. CLAIR BEACH - WATER POLLUTION SURVEY

Lake St. Clair

<u>Mileage Designation</u>	<u>Location of Sampling Point</u>	<u>5-Day BOD (ppm)</u>	<u>SOLIDS (ppm)</u>			<u>Anionic Detergent as ABS (ppm)</u>	<u>Coliform Count per 100 ml Membrane Filter</u>
			<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>		
L.ST.C.66.52	West of Pike Creek	2.4	262	43	219	0.1	140
L.ST.C.67.24	Near Tecumseh and St.Clair Beach boundary	2.5	242	53	189	0.1	320

T A B L E 3

VILLAGE OF ST. CLAIR BEACH - WATER POLLUTION SURVEY

Pike Creek

<u>Mileage Designation</u>	<u>Location of Sampling Point</u>	<u>5-Day BOD (ppm)</u>	<u>SOLIDS (ppm)</u>			<u>Anionic Detergent as ABS (ppm)</u>	<u>Coliform Count per 100 ml Membrane Filter</u>
			<u>Total</u>	<u>Susp.</u>	<u>Diss.</u>		
P.O.08	Near mouth at Lake St.Clair	12.0	762	22	740	0.2	300,200
P.O.33	At Highway 39	7.0	424	63	361	0.1	6,000
P.O.41	At Munro Island bridge	12.0	472	56	416	0.3	500,000
P.4.00	At Highway 2	4.0	334	24	310	0.0	1,600

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